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ORIGINAL ARTICLES

THE UNDERLYING PRINCIPLES EMPLOYED IN THE ARTIFICIAL FEEDING OF INFANTS.

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BOSTON, MASS.

The method of approach to the artificial feeding of infants has changed materially in recent years. This has been done, not so much to added knowledge gained directly from the study of the feeding of infants, as to the application of knowledge acquired through the study of the general problem of nutrition. We are now concerned with the amount and the kind of food which the infant receives in each twenty-four hours. Formerly, we thought in terms of the amount and the composition of the food given at individual feedings.

Metabolism measurements have indicated the essential requirements for growth, and the proportionate amount of food utilized for the satisfaction of basal requirements, for growth and for activity. It has also established the percentage loss in excreta.

Animal experimentation has indicated the necessity for considering the various food elements in total amount and in relation to one another. It has also demonstrated the fundamental nature of the vitamins and the necessity for providing an adequate supply of these substances.

Some of the knowledge which has resulted from these studies is new, but some of it has served merely to confirm on a scientific basis practices which have been in vogue formerly on an empirical basis.

In order to intelligently prescribe the food for babies who are not nursed by their mothers, we should be familiar with the facts with reference to food requirements. If we understand the prin-

ciples which govern growth, the method of application of these principles may vary widely. If we try to learn a method and not study the principles that underly it, we may be successful by luck in a considerable number of cases, but we shall be quite unable to understand why one baby does well and another poorly, and we shall not be able to intelligently analyze the history of children who present nutritional disturbances.

The food requirements of the normal baby are measured in relation to weight for age, and the food is always considered on a twenty-four hour basis. We shall then have to familiarize ourselves with the qualitative and quantitative requirements. The food elements which are essential for growth are protein, fat, carbohydrate, salt, vitamin and water.

At the risk of boring you by the repetition of simple, well known facts, I wish to state briefly the function of each of these food elements, and the amount which is necessary for a growing infant in each twenty-four hours.

Protein is used to build the body structure, and when an excess is present beyond the amount needed for body building, it serves as fuel. Not all proteins are of equal value as body builders. It is, therefore, necessary to supply foods which are complete, that is, which have all the essential amino-acids. An infant requires approximately 1.5 grams of protein per pound per day. The average infant can be given safely considerably more than this, but if the tolerance for protein is greatly exceeded for any considerable period of time, fever and toxemia, not unlike those present in acute infection, may occur.

Fat and carbo-hydrate are the chief sources of fuel for the body, and within certain limits, these elements are inter-changeable for this function. Fat also is the vehicle for conveying one of the vitamins to the body. The average infant requires approximately 1.8 grams of fat per pound per day. If fat is given in great excess, diarrhea may develop, and ketosis follow. Carbohydrate, in addition to furnishing fuel, spares the burning of protein, and is essential for the complete com-

*Read before the Rhode Island Medical Society, June 7th, 1928.

bustion of fat. Lactose, the carbohydrate present in cows milk, is also the vehicle for conveying to the body one of the essential vitamins. Carbohydrate is the food upon which fermentative bacteria flourish with the production of peristalsis. The average infant utilizes from four to six grams of carbohydrate per pound per day.

The salts needed for infant growth are calcium phosphorous, magnesium, sodium, potassium, chloride and iron. It is difficult to state simply the salt requirements. It will perhaps be sufficient to say that except in tetany and rickets there is rarely any necessity for the consideration in the normal infant of salt requirements. It is important, however, to bear in mind that the usual methods of artificial feeding of infants will not furnish enough iron to supply the needs of the body. Other salts are furnished in sufficient amount so that none of them need to be added to the diet.

Vitamins A, B and C must be furnished in sufficient amounts to prevent the development of the deficiency diseases. We must know what these diseases are, and the absence of which vitamin is responsible for the particular disease. Rickets is not really a deficiency disease, but since its development may depend upon a lack of certain elements in the food or certain factors in the environment, it should be considered at this time, and provision made to insure against its development.

Water should be provided in the amount of $2\frac{1}{2}$ to 3 ounces per pound per day.

If we take all the food requirements together, we shall have a quantitative value which can be measured as calories. The average growing infant receives from 40 to 50 calories per pound per day. This will vary somewhat with age and activity. A younger infant requires somewhat more calories than an older one, and a more active infant requires more than a quiet one.

The usual food employed as the basis for the artificial feeding of infants is liquid cow's milk, and we may transfer our required measurements to ounces of cow's milk. If we use whole cow's milk dilutions, which are quite satisfactory in nearly all instances, it will be found that one and one-half ounces of whole cow's milk per pound per day, satisfies completely the protein and fat requirements. It satisfies a part of the carbohy-

drate, salt, vitamin, and fluid requirements. A considerable proportion of the total calories needed in the 24 hours will also be supplied by this amount of milk. It has been found by practical experience, that it is rarely safe to give over any considerable period of time more than two ounces of cow's milk per pound per day.

In order to satisfy completely all the food requirements of the infant, we must add in addition to the ounce and one-half to two ounces of whole milk more carbohydrate, iron, fluid, and certain vitamins in order to prevent the development of deficiency diseases. From practical experience, we know that it is unwise to add more than $1/3$ of the total calories in the day's food supply as sugar. If this amount of sugar is added to the amount of milk already indicated, the caloric requirement has been met. We can then add enough water to complete the fluid requirement.

Iron can be given in the form of vegetables or fruits, or as in medicinal form.

Vitamins A and B are supplied in sufficient amount in the liquid cow's milk. Vitamin C, essential for the prevention of scurvy, is furnished by orange juice or some other fresh fruit. Rickets may be prevented by the addition of Cod Liver Oil, or by exposure to the natural sun's rays or to the ultra violet lamp.

These principles furnish a very simple basis for the artificial feeding of infants. If they are thoroughly mastered and applied, most normal babies will develop satisfactorily, and without difficulty.

The baby who presents evidence of indigestion will, if his history is carefully analyzed and his physical examination carefully performed, be found to be suffering from one of three conditions, either wrong food, or incorrect method of handling, or infection. In babies who are properly fed from the beginning, disturbances of digestion are almost invariably due to infection. This point is frequently overlooked.

If we can familiarize ourselves with the principles underlying the artificial feeding of infants, the method to be employed is not so important, because any method which furnishes to the infant in each twenty-four hours his required amount of food of the proper kind, is a satisfactory method.

A PLEA FOR THE CROSS-EYED CHILD*

By J. F. HAWKINS, M.D.

PROVIDENCE, R. I.

Nearly ten years ago a paper with this title was read before the Pediatric section of this society. It has borne good fruit. It was paid the compliment of a long and thorough discussion. As far as known, its opponents were, or have been, won over to what at that time was regarded as very radical claims. The intervening years have added to the truth of the statements then made and many converts have come into the fold. What was denied as possible to accomplish at that time, even by oculists who opposed the views then presented, is not only now accepted by them, but in some instances is put forward as having been advocated by them, when as a matter of fact they are only now employing such methods of correction, as shall be mentioned later, because forced to do so by request or the demand of public opinion.

The splendid results of early correction of cross eyes in children are becoming so well known to their parents that he is indeed a courageous oculist who would now pooh-pooh the idea of early correction. And the general practitioner is of quite a different opinion also. Of that, more anon.

Notice the title of the paper, "A Plea for the Cross-eyed Child;" the child having no one to plead for it, an attempt to do so will be made here. Its parents or the doctor are the only ones to whom it may look for aid. The former have often been told by the latter, to wait. Seven years is the usual time specified. Just where the *seven* came from is laden with uncertainty. Was it Biblical? Did the seven lean years and the seven fat years have aught to do with it? Or was it more remote? The Medes and the Persians had many cycles of seven, and they carried them to India and China. Wherever its origin we know it did exist, and unfortunately still exists. But, thank goodness, to a less degree than formerly. It may be that the younger generation of "medicos" are not as much given to that sort of thing, or is it because they have had an opportunity to see the fallacy of it? The fact remains that there are many physicians today who still tell parents to do

nothing about the crossed eyes of their children until they are seven years old, and if seen after the child is seven, then wait for the second cycle of seven, fourteen, or if they do not mention the magical, mystical seven, they advise waiting until the child "grows out of it."

Where they got that "grows out of it" idea is also deeply uncertain; for one may look in vain to find a case where he can ever recall having seen an unassisted recovery. Or, perchance, they assumed a spontaneous or unaided straightening when something like the following was what actually occurred.

A young man at law school in Boston, some years ago, was so deeply sensitive to the handicap under which he was living with one eye so far turned in that it looked as though he could look into his own nose, that, after saving some money out of his weekly allowances, went to an oculist of revered memory and stated his plight. The good old doctor did a tenotomy, under local anaesthesia, there in his office on the spot. (Don't tell me the old doctors aren't courageous.) The young man returned to his home, a city 70 or 80 miles distant, the following week end. To say his parents were astounded is putting it mildly. They hardly knew him. He saw very few of his town folk at this time, but did see them long after this incident. They are probably quoting it as one of those "grew out of it" cases. He is practicing law in Providence today. Many of you know him. I'll wager not one in a hundred can tell he ever *was* cross eyed.

In the vast majority of cases the cause of the squint is a loss of muscle balance, equilibrium, or fusion between the two eyes. Heredity plays its part. A muscle too long or too short. Many cases follow the spasms of whooping cough. Why? Surely no short or long muscle there. Or, was it there and managed to stay straight until the overload came? Most crossed eyes are hypermetropic eyes, far sighted eyes so called, a misnomer, but we will pass that at this time. But there is a remote, or primary cause. Not always pertussis, pyrexia, pyaemia, chorea, or the exanthemata, but many times directly associated with these, rightly or wrongly, by the parents.

Whatever the cause, the fact remains the child becomes cross eyed. What happens? Diplopia; double vision. And no matter how young, even

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the infant, soon learns to tell the true from the false image. And also learns to suppress the false image. Then follows amblyopia ex anopsia (loss of vision from non use). The eye upon fundus examination may appear perfectly normal. Yes even years afterwards that fundus may show no pathology. But it is a blind eye. And it always will be a blind eye. Therefore the reason for the plea to have these cases seen early; seen before the eye ceases to function.

In the paper of ten years ago, referred to at the outset, it was stated that glasses were put upon children as young as 14 months old. There are infants in Providence today with glasses on, who are only four months old; if the glasses are removed as much fuss will be raised as when their bottle of milk is removed. The eyes of these children are straight under the glasses. Remove the glasses and the eye turns in at once. The eyes that will not stay straight, either with or without glasses, are the operative cases. Even in advanced cases or cases that come late, or in adult life, when the sight is gone, and there is no hope of return of vision, at least they can be made less unsightly. It is actually a temptation to walk up to a cross-eyed person on the street and tell them they need not go around through the community the rest of their lives in any such condition.

One would hardly be excused for being so solicitous, however, be it ever so desirable.

At one of our hospitals this incident occurred. A fine husky, healthy three-year-old was brought to the clinic by his mother because his right eye turned in. She was a rather unusual type of mother to see at the clinic these days, in that she accepted treatment and advice without resentment or comment. The youngster was refracted and glassed. Upon his return in two weeks his mother reported he was delighted with the glasses; wanted to wear them at all times and strenuously objected to their removal even when he was being put to bed.

Mistake not, this was because of the relief, and not that they were a new toy, because he never played with them. His eyes were straight. On removing the glasses the right eye turned in, over 30° within 10 seconds. Upon replacing the glasses the eye would return to its normal position. An assistant who was present told of his attempt to follow the preaching of his chief, only to find the

family doctor had told the mother to do nothing about it; said it was of no account and the child would outgrow it, as it was only a temporary thing. Feeling that wasn't sufficient he had to have a "whang" at those who would give the child relief, so unburdened himself of this piece of antediluvian heresy, "And whatever you do, keep away from them damn specialists because they will surely put glasses on him."

This is not intended as a slam at the dear old family doctor, the general practitioner, as we of this society know him and his splendid worth and work. And when one has practised in that goodly company himself for many years, he is still less likely to offend, or have desire to do so.

It is used wholly in an attempt to get you to stop that sort of thing wherever you see and hear it. Whether it comes from your professional brethren or from a layman. The specialists are not putting glasses on children, or adults for that matter, who do not need them any more than that type of man is giving unnecessary medicine; perhaps not as much so.

How long must the glasses be left on? May be forever. What of it? Isn't it worth it? It is not such a high price to pay for what you get. Is it a cure? Certainly it is a cure. Just as much a cure as when a permanent bone plug or graft, *a la Albee*, is put in and left there forever and a day. If glasses can be left off later, it will be done.

If cases come to you late, even after that absurd waiting game has been tried, much may be done. Not always in the way of vision, but at least in appearance. At that time improvement is usually obtained by operation, rather than by glasses, or by both combined. And if you aid in that *desideratum*, you will have placed yourself in line for many heartfelt thanks through the years, from a grateful adult who can then realize what disfigurement you saved him, when as a child he had only you to look to for relief. Because parents, even in the best families, have not your medical knowledge and will have nothing done for the eyes of their children unless sanctioned, or encouraged, or even forced upon them in many cases, by their doctor.

Now as to where to send them:

Both the dispensary clinics and the school oculists are crowded with work, and these cases take much time and patience.

Unless it is an absolute charity case, call up your oculist, or send him a note, and arrange a time and fee, in cases where you think he should make a special price. You know the finances of the family, he does not. He will always be glad to meet the requirements of the case, just as you are. The fact he has become a specialist, hasn't changed his sentiment or emotions.

Although not coming under the title of the paper, a word should be said for the adult. It is surprising the number of cross-eyed people one sees on the street. It is a severe handicap when one is seeking employment, and it is a constant source of chagrin to the unfortunate possessor. As an illustration of what will be done for relief, the following case will serve as an example.

A girl of sixteen, in the Pawtucket High School, was so annoyed by her teasing companions calling her "Cock-Eye—Cock-Eye" that she was almost a nervous wreck. She got no sympathy, relief or encouragement at home and determined to do something for herself. Unfortunately for her, the hospital clinic to which she applied was manned by an oculist who did not give her the relief she sought and her first experience was most discouraging. Not giving up hope, however, she acquired and saved money of her own, by carrying dinner pails to the mill, and then announced to her parents she wanted to see a specialist, whom she could pay, and see if he wouldn't do something for her. This oculist agreed to operate (correction by glasses was out of the question at that stage) and didn't realize until long after the operation had been performed and the result all that the most exacting could expect; the source from whence came the money for his fee. Fortunately he did find out in time to "make the punishment fit the crime." This girl, like most of such cases, had a blind eye at that stage of the story; but as she had only one eye with which she could see anyway she lost nothing in vision and gained much in comfort and health.

A long and what would probably be only an annoyingly irritating list of case histories could be given to you. So also could a large number of photos showing "before and after taking." They are not necessary. You know and see them every day. They need no cataloguing, indexing or even reciting. You are familiar with such cases every day of your life. The contention is that not enough

is being done for them. In this movement for the betterment of the condition of these unfortunates the family doctor has first place. It is true you can only advise and recommend. But it is a service you should render. And if you do render it, you will deserve and probably receive that splendid tribute "Well done thou good and faithful servant."

DIAGNOSIS AND TREATMENT OF TUBERCULOUS LARYNGITIS*

By BENJAMIN S. SHARP, M.D.

PROVIDENCE, R. I.

Secondary infection of the larynx is a frequent complication in chronic cases of pulmonary tuberculosis. It occurs most frequently in advanced cases, but in patients with limited chest lesions, this affliction generally indicates a severe type of infection or a rather lessened degree of resistance. Many investigators hold the view that laryngeal lesions usually render the general prognosis rather grave. Approximately 30 to 40 per cent of all cases in institutions for tuberculosis show involvement of the larynx. Because of this frequent occurrence, we have endeavored for the past three years to examine all cases at Wallum Lake.

No condition responds more rapidly to properly given treatment than the tuberculous larynx, provided the diagnosis is made fairly early. Every patient with pulmonary tuberculosis should be considered a potential case for secondary development of laryngeal involvement.

Examination of the upper respiratory tract should be objective and regular routine laryngoscopies should be made in all suspicious cases before classical subjective symptoms such as huskiness of the voice, dryness, hoarseness, pain on swallowing and pain referred to the ear, develop.

We endeavor to give routine examinations of the larynx, with special reference to the posterior laryngeal wall, because this region is the most frequent as well as the first area to be infected. Infected sputum continually passes over this mucosa which is thrown into folds by actual move-

*Read before the quarterly meeting of the Rhode Island Medical Society, held at Wallum Lake, Sept. 6, 1928.

ment during phonation, respiration, coughing, and swallowing. It seems reasonable, therefore, that these crypts of the mucous membrane may become devitalized by constant irritation, so that the infected sputum, may in time, produce erosion of the mucous membrane or severe reaction such as hyperemia, edema, and infiltration. Frequently the surface epithelium breaks down and ulcerates and mixed infection ensues. The true vocal cords are susceptible to infection because of their anatomy. They are cartilaginous tissue covered with a thin layer of epithelium and these structures cannot stand the constant bombardment of bacilli for a long time without becoming damaged. Redness, thickening or edema of one or both cords may be seen early, then ulceration occurs and this condition produces a mouse bitten appearance or irregularity and later as the disease progresses tissue deformity and destruction takes place and the cords can never be repaired. The false cords are not involved as often as the true cords, however, we have seen several cases in the past three years that have shown tuberculoma in this region. As long as the tuberculoma is confined to the interarytenoid space, vocal cords or false cords, the prognosis is more favorable than in those cases where the arytenoids, epiglottis or the pharyngeal walls are infected. Early involvement of arytenoids and interarytenoid space may show only a beefy red appearance. In advanced stages, ulceration, infiltration and destruction can be plainly seen. The epiglottis frequently, pharynx occasionally, and tongue rarely, are involved in the disease. Lesions may appear as red, nodular swellings or dirty ulcerations.

We have found that certain early subjective symptoms are helpful in aiding us to make a diagnosis. Some of these complaints are, dryness and burning sensations in the throat and vague pains radiating from region of the thyroid to the ears and at times, patients complain from two to four weeks before a definite lesion can be made out with the laryngeal mirror. Some of the cases have definite signs of laryngeal involvement, such as tuberculoma of interarytenoid space and yet have no complaints, but as soon as the arytenoids or vocal cords are involved, there are many symptoms of distress. Infiltration and ulceration around the arytenoids and epiglottis cause much discomfort to the patient.

Laryngeal involvement is always secondary to pulmonary Tbc. condition, therefore, these patients should be treated in a sanatorium, as a carefully regulated plan of general treatment of the pulmonary lesion is quite necessary, and in this way, the clinician and the laryngologist are better able to get results for their patients.

Our plan of treatment of tuberculous laryngitis is as follows:

(1) Vocal rest for all patients who have definite signs in the larynx. Pad and pencil is given to the patient, and he is instructed to write everything, thus impressing him with the seriousness of his condition and also putting the larynx at rest.

(2) Treatment of the local lesion. The active treatment is the electric cautery. Therefore, all patients that show pathology of the arytenoid space, namely, tuberculoma, infiltration, ulceration or edema are considered suitable cases for cautery provided they are not running marked fever and not subject to frequent attacks of hemoptysis.

Cauterization is done under local anaesthesia and the direct method is used. Cauterization produces inflammatory reaction to the tissue with probable development of new blood vessels, giving this area nutrition and resistance. We even use the cautery in hopeless, far advanced cases as a palliative measure to relieve pain and coughing. Treatments are carried out regularly once a month until the patient is relieved or until the tuberculoma has disappeared.

In certain febrile cases with hemoptysis, and in far advanced cachectic cases, we employ various palliative drugs to allay the suffering of the patient. Some of these are; orthoform, chaulmoogra oil, antipyrine solution, cocain and adrenalin solution.

The Quartz Light treatment has not been of value to us. Many patients have had this treatment however; but a very few seem to benefit. Objectively, we have seen no change in the laryngeal lesion by this treatment, yet some cases seem to benefit psychically at least.

In concluding we wish to give a brief résumé of the patients treated with the cautery at Wallum Lake.

Twenty-six cases have been under treatment. Eighty-two cauterizations have been done, some cases receiving one, others as many as eleven treatments.

Twenty-one cases were improved as for as larynx and subjective symptoms were concerned.

Five cases died but not from the laryngeal involvement.

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G R E E T I N G S

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EDITORIALS**CIVIC SHAME**

Sewage disposal is undoubtedly one of the important problems of the present day. All large cities seek its solution and municipal progress in this and other matters seems to be dependent upon the education and temper of the people and to bear directly upon the type of persons elected to public office. The interest of the public does not seem to have been particularly elicited in its behalf nor is there any urgent propaganda of education upon this branch of sanitation.

We might liken a municipality or township to a family well housed, with paved streets and walks, suitable plumbing, flowers in the garden, amusements,—radio and music offer improvements of the mind and cultural influences, food and clothing are good but expensive and there are the usual evidences of prosperity with more or less good taste,—but the water supply as it leaves the house is deposited in a stream close by and the pleasant purling brook that was a fragrant delight has become a filthy ditch.

There is in this commonwealth the somewhat unusual circumstance of a city and town evidently resenting the mandate of the state and showing such marked unwillingness to bring its sewage disposal equipment to any degree of efficiency and decency as to resist legal proceedings. In other words the above mentioned family upon being asked to properly care for its refuse, refuses to do so and shields itself behind the scriptural sarcasm "He that is filthy let him be filthy still." It must be that any such view of a government, any failure to bring its charge up to a higher standard of hygiene, resistance to the orders of a properly appointed and able Commission,—is due in part at least to its inappreciation of the importance of health and municipal problems, a lack of foresight in city planning and perhaps of adequate representation of the matter to it. We wonder if a campaign of instruction properly backed up by suitable literature and informing interviews with city and state boards of health would so persuade recalcitrant authorities that they would be more inclined to favor and assist what is a tremendously needed public improvement.

**FOR SALE—HEALTH AND LONG LIFE—
THE "HEALTH BUREAU"**

In a recent issue (Editorial—December, 1928) attention was called to a convincing expression of the opinion that on the whole the so called "Health Audits" are of doubtful value at best and often do much positive harm by focussing the attention of a relatively normal person on insignificant abnormalities, while failing to predict adequately any real breakdown of vital functions. Furthermore some time ago under the heading "Health Examinations" (Editorial—June, 1925) the JOURNAL discussed the work of various organizations, "institutes" or "bureaus" which attempt to furnish periodic examinations, laboratory tests and so forth, with a view to helping their clients prolong their lives. It was pointed out that such institutes are bound to lose that personal touch and insight which is so important in interpreting to the patient the physical findings which have been discovered and in advising him accordingly as to his mode of life. With elaborate offices and equipment and all the evidences of "business organization" such an institute represents a spirit far removed from the sympathetic understanding of the family physician. Nor can it offer the patient any facilities not already at his disposal through the agency of his own doctor. Furthermore such institutes while attempting to offer services at a low cost are open to criticism on two important points: first, being essentially "business" institutions they must have rigid prices and can make no move to help the needy and unfortunate; and second, they employ doctors at a starvation wage to do their work for them. Such doctors receive absurdly low compensation for what they do and a large part of the fee which the patient pays goes for the overhead expenses, the cumbersome organization and the officials who must make their living from the business.

This subject is of especial interest to Rhode Island physicians because at the present time a "bureau" of this type is being established in Providence. Elaborate offices have been engaged and it is to be announced as a "Scientific Bureau, organized as a humanitarian, *semi-philanthropic* organization upon a business basis." The JOURNAL believes that the establishment of such a business concern whose avowed intention is to under-

take work which is now far better performed by the medical men of the state is unwarranted and that the Rhode Island doctor who chooses to practice under the direction of the self appointed officials of such a concern is, to say the very least, unwise.

MENTAL DEVELOPMENT OF CHILDREN

One of the real contributions that the mental hygiene movement has made is in the better understanding of the mind of the child. It is perfectly true that "being a parent is the hardest job in the world" and it is often an occasion for wonder that more children do not develop into anti-social beings.

While the early years of childhood are full of potentialities in the mental life of the child, it would seem that the extremists of the behavioristic school are too radical in suggesting that the first two years practically determine the future mental equipment of the person. On the one hand this would be most comforting to some who have undesirable mental traits, for they could blame their actions on their parents or on the ones who guided their destinies during these years. On the other hand, how tragic it would be to some who recognize their shortcomings and realized the impossibility of change.

It seems much more rational to agree that there exists in children certain characteristics that can be used properly to develop a normal personality, but are often abused to produce an abnormal personality. These characteristics are imitativeness, love of approbation, plasticity and suggestibility. When these are recognized by wise parents and the proper environment for their normal expression is afforded, the child is given a mental equipment that will go far toward meeting and conquering the joys and the adversities of later life.

THE EFFECT OF DENTAL PATHOLOGY UPON THE EYE AND EAR*

LEWIS B. PORTER, M.D.

As a part of our present day activities, complete physical examinations are called for. Such an examination is not complete without an inves-

tigation of the teeth, and often not without an X-Ray picture. Since 1912, when Billings wrote his epoch making paper on focal infections, and Rosenow, in 1915, on the "Elective Localization of Streptococci," the teeth have gained pre-eminence as foci of infection. The role played by the teeth is especially large in ocular focal infection, probably because pyogenic organisms associated with bone necrosis have been observed to be very virulent. Recently Byers of Montreal, in an analysis of eighty cases of iridocyclitis, found, after eliminating syphilis and tuberculosis as causing twenty-two, that of the remaining, forty-three were due to focal infection, of which, twenty-six were caused by the teeth, a percentage of 53.75 per cent., while the ears were responsible for 1, sinuses 3, tonsils 6, gall bladder 1, intestines 1, G. U. tract 5.

In Irons' and Brown's investigations of the "Recurrence of Iritis as Influenced by the Removal of Infections," based on a study of fifty cases followed for three to twelve years, the probable source of the infection was found in forty-six of these cases. Tonsillar infections were found in 34 per cent.; dental, 20 per cent.; sinuses in 2 per cent.; teeth and tonsils combined in 10 per cent. Elschnig reports twelve cases of iridocyclitis in twenty-eight due to dental infections.

De Schweinitz says that most of the ocular structures are liable to focal infections, most frequently the uveal tract, less frequently the cornea and sclera, undoubtedly the optic nerve, and even the retina and its circulation. Dental infections are especially responsible for systemic disease of focal origin occurring after middle age.

Benedict, in a Mayo clinic report, gives the following modes of transmission from the teeth to the eye:

- (1) Direct transmission through bones. The tooth socket becomes the seat of an infection that destroys the bone of the upper jaw, and through that, directly affecting the orbital walls, finally producing an orbital cellulitis or retrobulbar neuritis.

- (2) Direct extension of the process along the periosteum to the malar bone, invading the orbit

*Read at a joint meeting of the R. I. Ophthalmological and Otological Society and the R. I. Dental Society, April 12th, 1928.

and giving rise to processes similar to those mentioned.

(3) Transfer of organisms from the focus at the tooth to the eye by the blood stream. This is the most frequent means of transfer of infection from the teeth to the eye, and is the most important. L. Webster Fox believes that inflammation or irritation of the fifth nerve by dental affections causes reflex disturbance. Such a condition I have observed in a patient with a paralysis of accommodation and mydriasis which was quickly restored after the extraction of an abscessed tooth. Benedict says the iris and choroid are more often attacked by organisms from apical infections and less often cause optic neuritis, scleritis, keratitis, and conjunctivitis. This might be extended to include retinal hemorrhages and various functional disturbances, as asthenopias, insufficient accommodation, and convergence.

In the search for foci of infection in scleritis, Benedict finds periodontal infections the most common. Iritis, cyclitis and choroiditis have been produced in animals by injection of bacteria grown from periodontal abscesses of persons having an acute attack of these diseases.

Knapp says that chronic septic foci frequently exert a baneful influence on eyes that have recently been operated on. Various grades of iridocyclitis developed in the second week following uneventful cataract extraction have been apparently due to tooth infections.

Retrolbulbar neuritis during the past few years has had much attention given to it, largely through the work of Leon White. Until recently he believed infection in the sphenoid sinus and adjacent post ethmoid cells with a small optic foramen was responsible for this condition. He now believes the sinuses are but rarely infected, and finds it unnecessary to open them except in a few desperate cases. The removal of infections in the tonsils and teeth, and less frequently, from other sources, give the best results. Devitalized teeth should especially be studied. A definite focus was found in fifty-three of the sixty unreported cases. The tonsils were the only focus in seventeen; the teeth in fourteen; antrum in five. The teeth and tonsils, alone or combined, are considered to be a focus in seventy per cent. In six cases the ethmoids were involved, but in these there were also

infected teeth, tonsils or antrum. The frontals and sphenoids were involved twice. He believes the infection travels by way of the blood stream, and produces a neuritis of the optic nerve. Eliminate the infection of the blood stream and the neuritis subsides. Corneal ulcer has been frequently reported due to carious teeth and pyorrhoea.

Of the cranial nerves, the second and eighth, seem peculiarly susceptible to toxic substances. This is equally true of those of endogenous as well as those of exogenous origin. When due to advanced periapical abscesses, the removal of the tooth is not always sufficient, as the diseased bone in the tooth socket remains a focus of infection.

The auditory nerve is occasionally involved in a toxic neuritis affecting the vestibular or the cochlear branch or both. If unilateral, focal infection is first to be thought of. A man of thirty-five years of age consulted me a few years ago because of vertigo and sudden loss of hearing in the left ear. Functional tests showed this to be a nerve form of deafness. His tonsils were badly infected, and were removed within a few days. Weeks passed, and the paroxysms of vertigo and deafness recurred with an additional loss of hearing with each attack. Attention was then directed to the teeth with complete cessation of the vertigo and improved hearing following the removal of two or three teeth. The literature contains reports of many such cases.

Reflex otalgias are occasionally seen. There is a sharp stabbing pain in and about the ear. The drum is uninflamed and may look quite normal, likewise the functional hearing tests may be normal. An examination of the teeth or an X-Ray picture will often account for the pain. Though not a focal infection, I wish to refer to the impacted tooth, frequently with deep seated pain in the ear, shooting to temple or back of the ear. The pain is never manifested at the point of the impaction, but elsewhere, and is located in some other branch of the trigeminus, but may be shown by reflex pain or disturbance in some other part of the body. Stucky reports a case of iridocyclitis due to an irritation from an impacted tooth.

I am not aware of any procedure that can assure us that a pulpless tooth is free of infection and not disseminating bacteria and poison to other parts of the body. Such teeth I look upon with

grave suspicion. Hayden says, "There is much difference of opinion concerning the disposition of pulpless teeth which do not show radio graphic findings characteristic of infections. Bacteriologic studies have shown there is little difference in the frequency of infection in the two groups. If the removal of all possible foci is indicated, no pulpless teeth should be allowed to remain. In acute exacerbations, lymph nodes in the floor of the mouth are often swollen and tender on palpation in carious teeth and apical infections. The following case of Benedict quoted by Tivnen I should like to give to you: The case is of a man who suffered from recurring attacks of iritis during a period of six years; the attacks were always preceded by soreness of a right upper bicuspid, which came on about three days before the eye became inflamed, physical findings otherwise negative; the tooth referred to gave no roentgenologic evidence of apical infection, and an electric test showed the pulp was vital. The tooth was extracted and a culture was taken from the pulp, which, when injected into the blood stream of a rabbit, produced a hemorrhagic iritis in both eyes within a few hours, a subculture of this strain of organism produced a pericorneal injection in four hours, which entirely subsided in twelve hours. Here we have a tooth that roentgenographically is negative, but bacteriologically is a virulent infection. It is with chagrin that we occasionally find a patient with all teeth removed and still complaining of some ailment for which the teeth were removed. Such instances have tended to discredit the importance of dental focal infections. In the presence of symptoms of focal infections, the pulpless tooth should be looked upon with suspicion; roentgenographically it may be negative, but bacteriologically it may be infected, and this only can be determined after extraction. I regret to say there is a large percentage of dentists who do not fully appreciate the importance of dental infection to ill health. Some feel they have saved a tooth for their patient, only to have a fellow dentist later do the extraction. With a careful history and painstaking examination of the patient in co-operation with a dentist, not too wilful in his endeavor to save a diseased tooth, I believe we will succeed in giving the greatest benefit to our patient.

SOCIETIES

RHODE ISLAND MEDICAL SOCIETY

The regular meeting of the Council was called to order at 4:30 P. M. today at the Medical Library, the President, Dr. A. H. Harrington, presiding.

The application of Dr. Arthur Hollingworth for reinstatement into membership of the Society was received, and on motion of Dr. Mowry, seconded by Dr. Mathews it was voted unanimously to reinstate Dr. Hollingworth.

The Treasurer's Budget was presented by Dr. Jesse E. Mowry as follows:

BUDGET, 1929

Collation and Annual Dinner.....	\$650.00
Expenses of Secretary (Sec. hire).....	75.00
Delegate to American Medical Association	100.00
Printing and Postage.....	125.00
Fuel	600.00
Gas	50.00
Electricity	75.00
Telephone	95.00
City Water	10.00
House Supplies and Expenses	400.00
House Repairs	500.00
Janitor	600.00
Books and Journals (Including Ely Fund \$74.00)	100.00
R. I. Medical Journal	400.00
Safe Deposit	5.00
Delegates New England Medical Council	150.00
Librarian	1,660.00
	\$5,595.00

INCOME FOR 1929

Annual Dues	\$4,160.00
Interest from Harris Fund.....	290.00
Interest from Ely Fund	74.00
Interest from Frank L. Day Fund	135.00
Interest from Herbert Terry Fund	100.00
Providence Medical Association	450.00
Use of Building.....	125.00
From Journal	400.00
	\$5,734.00
Balance in Bank Nov. 1, 1928.....	\$1,614.01

HARRIS FUND

Southern Illinois Light & Power Co.....	120.00
Pacific Gas & Electric Co.....	60.00
Mort. Security Corp. of America.....	110.00
	<hr/>
	\$290.00

J. W. C. ELY FUND

Southern California Edison Co.....	\$50.00
Mechanics National Bank.....	24.00
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	\$74.00

FRANK L. DAY FUND

Canadian National Railway.....	\$135.00
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HERBERT TERRY FUND

Missouri Public Service Co.....	\$100.00
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On motion of Dr. Richardson, seconded by Dr. Mathews it was voted that the Treasurer's Budget be accepted and referred to the House of Delegates with the recommendation to adopt it.

Dr. F. E. Croghan being in arrears for dues for the years 1925 and 1928 inclusive and having received the customary 90 days' notice was by vote of the Council dropped for non-payment of dues.

Dr. Richardson called attention to the contemplated Health and Hospital Survey of Providence which will probably be conducted by the American Public Health Association. This survey will be purely a fact-finding investigation for the purpose of evaluating the amount of charitable work now being done by the various charitable organizations and hospitals. Dr. Mowry introduced the following resolution which was seconded by Dr. Mathews:

"Resolved—the Rhode Island Medical Society is in sympathy with the action of the American Public Health Association in making a Health and Hospital Survey of Providence as proposed by the Council of Social Agencies of Providence.

It was so voted and referred to the House of Delegates.

Adjourned.

DR. J. W. LEECH, *Secretary*

NOVEMBER 21, 1928

The regular meeting of the House of Delegates was held today at 5 P. M. at the Medical Library, the President, Dr. A. H. Harrington, presiding.

The report of the Council meeting held just before this meeting was made by the secretary, and all the recommendations of the Council were approved by the vote of the House of Delegates.

On motion of Dr. Mowry, seconded by Dr. DeWolf it was voted to fix the annual dues of the Society at \$10.00 per year for the coming year.

Adjourned.

J. W. LEECH, *Secretary*

PROVIDENCE MEDICAL ASSOCIATION

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Edward S. Brackett, Monday evening, November 5, 1928 at 8:45 o'clock. The records of the last meeting were read and approved. The president appointed for an obituary committee for Dr. Davenport, Dr. Charles V. Chapin, Dr. J. M. Peters, and Dr. Halsey DeWolf. The president appointed for an advisory committee for the District Nursing Association a committee of seven authorized by the meeting as follows:

Dr. D. L. Richardson
Dr. John I. Pinckney
Dr. W. P. Buffum, Jr.
Dr. J. Joseph Hoey
Dr. Harold Libby
Dr. Joseph L. Belliotti
Dr. Carl R. Gross

The first paper of the evening on Spinal Anesthesia by Drs. Meyer Saklad and Eliot A. Shaw was read by Dr. Saklad. He first spoke on the physiology of the nervous innervation showing that pain is abolished, muscular action prevented and blood vessels dilated in the splanchnic area. Thus the higher the anesthesia the more vessels dilated and the greater the fall in blood pressure which is the source of danger. The Trendelenburg position and the use of ephedrine as a vaso constrictor combat this danger. A description of the different techniques was given. Also a series of their cases. Relaxation is marked with this method. The paper was discussed by Dr. Shaw who described Pitkin's method and its indications. In this method a viscid solution of specific gravity less than the spinal fluid is used

and with Trendelenberg position of varying degrees the height of anesthesia can be regulated. The usual length of anesthesia is from one hour to one and one-half hours. The blood pressure should be carefully watched throughout the operation. Salt solution intravenously is the best method to combat dangerously low pressure and oxygen and carbon dioxide for respiratory embarrassment.

The second paper of the evening on "Placenta Praevia" was read by Dr. John G. Walsh. This was phased on 149 cases at the Providence Lying-In Hospital. It is most common in multiparae, the ratio being 1 to 5. Hemorrhage in the last third of pregnancy without pain is usually due to this. Six and eight hundreds per cent maternal mortality occurred in this series usually from hemorrhage. Fetal mortality is 20 to 80% in different series. In this series it was 50%. Treatment should usually be instituted early. Version and extraction in this series had a very high incidence of maternal and foetal deaths. All such cases should be sent to hospital without examination. Caesarian section is apparently a valuable method but there can be no standardized method.

The discussion was opened by Dr. Fred. C. Irving of the Harvard Medical School. He said that diagnosis was of great importance and this can be made only by examination which should be done with preparation for immediate action of any extent. The safest method for the mother is a Braxton Hicks version bringing down a foot and leaving the remaining delivery to nature but this gives a large fetal mortality. They usually use a bag when the child is visible. In favorable cases Caesarian section seems the best. Dr. Foster S. Kellogg of the Boston Lying-In Hospital continued. He felt that in average hands central and partial cases were best delivered by Caesarian section. Discussion was continued by Dr. Appleton, Dr. Partridge, Dr. Brackett and Dr. Walsh.

Meeting adjourned at 11:10 P. M.

Attendance 112.

Collation was served.

Respectfully submitted,

PETER PINEO CHASE

Secretary

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Edward S. Brackett, Monday

evening, December 3, 1928, at 8:55 o'clock. The records of the last meeting were read and approved.

The Standing Committee having approved their applications, the following were elected to membership: Robert Connery O'Neil, Herman Paul Grossman. The nominations by the Standing Committee for officers and committees for the ensuing year were called to the attention of the meeting, and as Dr. Halsey DeWolf was already a councillor of the Rhode Island Medical Society, Dr. Albert H. Miller's name was substituted. Dr. Charles V. Chapin read an appreciation of Dr. James H. Davenport. The secretary mentioned a letter from the American Mail Line asking for the names of doctors who would attend the next A. M. A. Convention. He offered to send on any names given him. A letter from the secretary of the Rhode Island Medical Society regarding a Health and Hospital Survey of Providence by the American Public Health Association was read. This was explained by Dr. Arthur H. Harrington, and on the motion of Dr. Arthur H. Ruggles it was voted that this Survey be approved by the Providence Medical Association.

The first paper in a Symposium on Peptic Ulcer was Gastric and Duodenal Ulcer, clinically considered by Dr. Louis M. Gompertz, Assistant Clinical Professor of Gastroenterology, Yale University. Diagnosis is the first and important phase, and much has been done as to this. Etiology is still theoretical, and must be ignored in treatment. History is very important, but often baffling; physical examination is often negative, examination of stomach contents is unreliable, and even X-Ray examination is not conclusive. Ulcer can be acute, subacute or chronic. The duodenum is considered to be the most common site. Obstructing ulcer at the pylorus is an indication for surgery. Numerous dietic methods exist, and all of these have value, all including mental and physical rest. He outlined his usual treatments. During the periods when he gives nothing by mouth, he gives glucose by rectum. Two typical cases were presented. A number of interesting slides were shown.

The second paper by Dr. Theodore S. Moise, Assistant Professor of Surgery at Yale, was on Surgical Aspects of Gastric and Duodenal Ulcers.

Treatment is a combined medical and surgical problem, and operation is only an incident. Most surgical cases are late stages of treatment. He demonstrated a method of gastro-intrastomy done by him in which he used transverse incision of the jejunum. This obviates a valve formation at the stoma sometimes seen in the standard method with longitudinal incision of the jejunum. He then discussed the different types of operation for peptic ulcers.

These papers were discussed by Drs. Clinton S. Westcott, Chas. O. Cooke, H. L. C. Weyler, Alex M. Burgess, Herman C. Pitts, S. Morein, E. M. Porter, Gompertz, and Moise.

Meeting adjourned at 11:15 P. M. Collation was served.

Respectfully submitted,
PETER PINEO CHASE,
Secretary.

THE NURSES INSTITUTE

The first Institute of the Rhode Island League of Nursing Education was opened on Thursday afternoon, November 8, 1928, by its President, Miss Grace Breadon, with a short introduction and the first session was then presided over by Miss Helen O. Potter, Superintendent of Nurses, Rhode Island Hospital, Providence, R. I.

"Ward Teaching and Supervision" was the topic of a paper presented by Miss Blanche E. Edwards, Director of Supervision, Bellevue Hospital, New York City. Miss Edwards suggested that the more descriptive title, "Ward Instructor" be given the head nurse who, because of her intimate contact with patients and nurses, is the person best situated to carry on ward instruction. Her own work will prove more interesting and stimulating as she considers it from this standpoint, and under the guidance of the teaching supervisor of the department a better correlation between the students' theoretical and practical experience can be worked out.

Professor Bancroft Beatley, of the Department of Education, Harvard University, demonstrated the points in his discussion of "Motivation as an Aid in Teaching" in a manner that held the attention and interest of his audience. Upon the teacher he placed the responsibility of changing a neutral attitude on the part of the pupils to

that of whole hearted interest and gave many practical suggestions for doing this. Among them were: appeal to common interests, to the senses, to a sense of humor, and the use of muscular activity.

Further practical suggestions for the teacher were presented by Miss Caroline E. Stackpole, Instructor of Biology, Columbia University, New York City, assisted by Miss Angeline Polley, Theoretical Instructor, Homeopathic Hospital, Providence, R. I., in a "Demonstration of Material for Science Teaching." Miss Stackpole urged the use of meagre directions, simple problems, and ample time for students' laboratory work that they might learn how to "find out" rather than just amass facts. She gave other helpful suggestions for teaching Anatomy and Physiology, such as, combining the two courses in one; having the bones of the skeleton colored brightly with the name printed on each; using very much larger charts with details clearer. Miss Polley, aided by her students, showed the audience samples of charts, laboratory instruments, and materials including the "living" or "recently living."

The evening session, with Miss Mary S. Gardner, Director of the Providence District Nursing Association, presiding, was made notable by the presence of Dr. May Ayers Burgess, Director of the Committee on Grading of Nursing Schools, New York City, and Dean Annie W. Goodrich, of the Yale University School of Nursing.

Dr. Burgess gave a talk on the subject of her recent book "Nurses, Patients, and Pocketbooks" and in a clear, concise manner showed the serious situation in which the nursing profession is placed today. The astounding increase in the number of schools of nursing and graduate nurses, out of proportion to increase in population, not associated with corresponding rise in educational prerequisites and unequal distribution of graduates, bringing about many unsatisfactory results. She urged concerted action that standards might be raised and the present over production checked.

Dean Goodrich, speaking on the "Growth and Expansion of Nursing Education," showed that whereas nurses are faced with this serious problem, nevertheless the fact that the study is being made and considered is itself an encouragement

in that it indicates the scientific methods which the profession is adopting. The profession has grown rapidly, accomplished much, and has a "glorious destiny" as an economic asset thru prevention of mental and physical ills, and as a factor in promoting better international relations thru service to humanity.

FRIDAY'S SESSION

The Educational Institute of the Rhode Island League of Nursing came to order on Friday, November 9th, at 2 P. M. with Miss Ellen M. Selby, Superintendent of Pawtucket Memorial Hospital presiding and introducing the speakers of the afternoon.

The first speaker was Mrs. Francis G. Allinson of this city, President of the Plantations Club. Her subject was "The Nurse of the New Century." She said in part that nurses should firmly believe in their destiny which serves as a basis for working out our problems. The modern trend of education is sweeping over the country and business people are demanding a high school education of their lowest salaried employees. Success comes from technic plus the personality to go with the job.

The second speaker was Miss Mary S. Gardner, Director of the Providence Visiting Nurses Association. Her topic was, "The Public Health Nurse's Job and How to Prepare Her for It." She gave a brief history of the Public Health Movement, dividing it in stages of segregation, sanitation and education.

She also discussed the requirements for the nurse in the public health field, and the possibilities of undergraduate training for it through affiliations with local visiting nurse associations. In addition to the usual requirements for all nursing work, the public health field demands an ability to teach, an understanding of community health and a social and co-operative view point not needed to the same extent in other forms of nursing. Postgraduate courses are offered in various parts of the country but only a limited number of nurses are able to avail themselves of these. Miss Gardner urged a getting together of superintendents of training schools and public health nursing groups, to the end of a better

understanding of the educational problems of both.

The final speaker was Miss Emma Collins of the Brooklyn Nurses Official Registry. Her address was, "The Co-operative Movement Among Nurses, which is Called the Official Registry."

A clear picture of the needs of a city community was presented and the various ways in which the nurses registering for Private Duty meet this need.

The afternoon session closed with this address.

The evening session opened at 8 o'clock, with Miss Winifred Fitzpatrick, Associate Director of Providence Visiting Nurses Association, presiding.

The first speaker, Dr. Arthur Ruggles, Superintendent of Butler Hospital, Providence, spoke of the different attitude which the public maintains in respect to persons mentally ill; that Child Guidance Clinics are of recent origin; of the recent creation of the American Foundation for Mental Health. He said that every sick person has a psychiatric situation to be met, also that each person reacts differently to the same situation and illustrated this with the story of an industrial worker. The Industrial Nurse looks for the underlying causes in these situations. He emphasized the need of every nurse to have training in the care of mentally ill persons. In the past, a nervous breakdown was considered fashionable. Why not acknowledge mental illness and care for it as such?

The final speaker of the Institute was Dr. D. H. Kulp 2nd, Professor of Sociology, Teachers College, Columbia University, New York City.

His question was: What does Sociology say to nurses? Do not talk to nurses in general terms but be specific. There is not *the* nurse but *a* nurse. The approach to socio-analysis is practical. Find the common denominator in the field in which the nurse finds herself and approach the situation with this in mind. In finding this factor, the study of the person is made not from a personal angle but in his group interrelationships and culture. Personality is the result of experience which in turn is the outgrowth of heredity and culture. Think of a patient as a person who is a member of a group.

In concluding the Institute, Miss Fitzpatrick voiced the opinion of all present that it had been an inspiring success and thanked the many persons who had contributed so generously of their time and ability.

ANNOUNCEMENT

Dr. C. N. Raymond, a member of the Rhode Island Medical Society, announces his removal from 147 Reservoir Ave., to 320 Wadsworth Ave., New York City.

Dr. Raymond was married July 17th, 1928 to Miss Helen May Larkin.

(The *Journal* takes occasion to extend its congratulations and best wishes to Dr. and Mrs. Raymond.)

MISCELLANEOUS

COMMUNICABLE DISEASES IN LARGE CITIES

Some time ago the Institute of Medicine of Chicago appointed a committee of representative clinical and hygienic experts to make a survey of the communicable disease situation in Chicago. Their report,¹ recently published, deserves careful study. During 1926, one of the three years taken into consideration, more than 7,600 deaths from contagious diseases were reported in Chicago. This gives some idea of the significance of the task and the desirability of the investigation. It permits a forecast of 40,000 cases annually of the eighteen diseases selected for consideration. The numbers for the individual disorders show declining trends for all except chickenpox, measles and German measles; similarly there are declining tendencies in the death reports for the several communicable diseases, excepting encephalitis, chickenpox and smallpox.

Out of this document, necessarily statistical in large measure, certain conclusions of its authors deserve the attention of a wider audience than that of the municipality for which they were primarily considered. The commission adds its recognition of the proved value of immunization by toxin-antitoxin in the control of diphtheria—a practice that now has administrative sanction in many large American cities. It is pointed out that the ideal time for immunization against diphtheria is

from the first to the fifth years of life. This is the preschool period, during which it is notably difficult to reach the children; hence efforts should be directed here quite as much as to the early years of school. Measles prophylaxis has its pressing problems, as has already been pointed out in *THE JOURNAL*.² The Chicago experts suggest that, pending the outcome of conclusive studies, a moderate supply of measles convalescent serum be secured and made available for use by institutions and practicing physicians in the treatment of selected persons who have been exposed to measles. Active immunization against scarlet fever cannot yet be recommended as a general public health measure, principally on account of the large number of injections required and the short duration of the immunity afforded. As a prophylactic in special circumstances, particularly where scarlet fever exists, its value is unquestioned.

The Chicago report reflects the changing conditions shown in the annual reports in *THE JOURNAL* on the incidence of typhoid. It reminds us that the advisability of general immunization in a civil population depends on the prevalence of typhoid in the community in question. In Chicago, with a morbidity of only 5 per hundred thousand, general immunization of patients of even the more susceptible age group would, to quote the report, "necessarily pay a small return on the investment." Thus have sanitary science and preventive medicine progressed in the attack on a once formidable malady.

Two practical suggestions deserve widespread emphasis. One of them urges that physicians in practice should assume their rightful share of responsibility in the community for the control of communicable diseases, especially in the preschool group of children, and make special efforts to secure immunization of their patients against smallpox and diphtheria before they reach school age. The other advice is that all hospitals should provide facilities for the care of patients with communicable disease. All hospitals, in the words of the Chicago report, should be expected to provide facilities for the care of those who contract or develop a communicable disease while under observation or treatment for other ailments. Hospitals must recognize that they have moral as well as financial obligations in these matters, however much they may object to retaining patients with communicable diseases because of the expense of the special nursing care required by existing regulations of quarantine.—*Jour. A. M. A.*, Nov. 10, 1928.

1. Gerstley, J. R.; Geiger, J. C.; Falk, I. S.; Abt, I. A.; Grulee, C. G., and Norton, J. F.: Survey of the Communicable Disease Situation in Chicago, *Am. J. Dis. Child.* 35: 1048 (June) 1928.

2. The Prevention and Modification of Measles, editorial, *J. A. M. A.* 91: 803 (Sept. 15) 1928.